

Appl. No. : 10/528,125
Filed : November 21, 2005

REMARKS

Claim 1 has been amended. No new matter has been introduced by these amendments. The following addresses the substance of the Office Action.

Claim objections

The Examiner has objected to Claim 1 for not reciting “an” after the word “comprising”, Claim 1 has been amended accordingly.

Written description

The Examiner has rejected Claims 1-18 under 35 USC §112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Examiner alleges that the Specification on pages 1-7 does not mention using a zinc/magnesium alloy. However, Example 2 refers to a magnesium AZ-91 alloy. This is a known magnesium-zinc alloy comprising 0.3 to 1 wt% of zinc. In support of this statement, please find attached the printout from UK Racing Castings website describing the composition of this alloy.

The Examiner further alleges that the Specification does not provide literal support for “a halogen-free electrolyte bath”. However, as discussed in the response to the previous Office Action, electrolytic coating of the material according to the claimed invention is carried out in an electrolytic bath which comprises a halogen-free, aprotic solvent and the electrolyte according to general formulas I and II. It can be seen that neither the solvent nor the electrolyte comprises any halogen, and therefore, it is implicit in the Specification that the whole electrolyte bath is a halogen-free electrolyte bath.

For all the above reasons, Applicant asserts that Claim 1-18 are fully supported by the Specification, and their rejection under 35 USC §112, first paragraph should be withdrawn.

Non-obviousness

The Examiner has rejected Claims 1-18 under 35 USC §103(a) as being allegedly unpatentable over Dotzer et al. (USP 3,969,195) in combination with DE 198 55 666 and Lehmkuhl et al. (USP 6,652,730). Lehmkuhl is an English equivalent of DE 198 55 666.

On page 5 of the office action the Examiner lists the features of claim 1 and points out where these features are described in the Dotzer et al. reference. However, this assessment contains assumptions which the Examiner can only make if she knows the invention.

Appl. No. : 10/528,125
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Under a) on page 5 the Examiner refers to example 3 of Dotzer and states that this example describes the immersion of an aluminum/magnesium alloy or zinc/magnesium alloy material into a halogen-free electrolyte bath, the electrical connection of the material to be coated as an anode and anodically charging the material. However, this assumption is not correct. Example 3 refers to electro-aluminum coating of cylinders of magnesium alloys. Example 3 does not specify that the material which is coated is an aluminum/magnesium alloy or a zinc/magnesium alloy. Furthermore, example 3 also does not describe that the electrolyte bath is halogen-free. The electrolyte which is used in example 3 is not specifically described. Example 3 describes a two-step process, namely a mechanical cleaning of the surfaces to be coated in a first step by using air pressure and an organic solvent PER (perchloroethylene). In the second step after the cleaning of the surfaces to be coated, the electrolytic coating is carried out. This has nothing to do with the method of claim 1 which covers in a one-step-method the cleaning of the surface and the electrolytic coating of the material using the same electrolyte.

Also item b) on page 5 is not described in example 3. Example 3 of Dotzer states in lines 40 to 45 that as current source for the coating a pulse generator is used which, at a cathode/anode polarity reversal cycle of 4: 1 and 50 Hz deposition frequency is used to the object to be aluminized. However, this is not a step of reversing polarity of the material as stated in claim 1 of the invention. A pulse generator produces a very fast change of the polarity and this pulse generator is used for the electrolytic coating of the material in order to guarantee an even coating of the material. This change of polarity occurs in a very high frequency during the electrolytic coating.

In contrast, the present claim 1 defines a process in which in a first step the surface to be coated is pretreated by anodically charging the material for a certain time. After this pretreatment the polarity of the material is reversed once and then the electrolytic coating step is carried out. This is different from example 3.

Under item c) on page 5 of the office action the Examiner further states that electrolytic coating is carried out in the same electrolyte. She combines example 3 of Dotzer with column 7, line 55 to column 8, line 6 of this reference. However, this combination is not admissible because example 3 clearly describes a different pretreatment step, namely a mechanical one. Furthermore, it is a completely open question what kind of electrolyte is used in example 3 of

Appl. No. : 10/528,125
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Dotzer. As this reference deals with the coating of magnesium alloy with aluminum, a person skilled in the art would expect that the pretreatment method is applied which is described in the specification. Especially for magnesium and magnesium alloy surfaces the third surface pretreatment which is described in column 6, starting from line 30 is excluded for magnesium and zinc or its alloys (see column 6, lines 46 to 47). Instead of this third pretreatment method a person skilled in the art can read in column 5 starting from line 46 the usual surface finishing method which is used for all kind of materials even for magnesium and zinc surfaces. This method is identical to the method described in example 3 and uses a mechanical cleaning and an organic solvent like perchloroethylene for the pretreatment step. Therefore, the conclusion in the present Office Action that the Dotzer already describes the immersion of aluminum and magnesium in a halogene-free electrolyte bath, the reversing of polarity of the material and performing electrolytic coating in the same electrolyte is not correct.

On page 7 of the office action the Examiner states that the second reference Lehmkuhl teaches electro-aluminum coating of magnesium alloys by using electrolytes as described in the present claim 1. It is then concluded on page 8 that it was obvious for a person skilled in the art by combining the two references to come to the invention.

The presently claimed invention provides a new method for electrolytic coating of a material in which the pretreatment step as well as the coating step are carried out in the same electrolyte. For materials like magnesium or zinc Dotzer teaches away from the claimed method because in the reference it is explicitly stated that a pretreatment with the same electrolyte is not available for materials like magnesium and zinc or their alloys (see column 6, lines 43-48). For these materials the reference proposes a separate pretreatment step based on a mechanical treatment and a treatment with an organic solvent like perchloroethylene.

Therefore, a person skilled in the art would have no incentive from the Dotzer publication to modify this pretreatment step because Dotzer clearly states that pretreatment and coating in the same electrolyte with these materials is not possible.

The combination of Dotzer with the Lehmkuhl publication would not lead to the invention because the Lehmkuhl publication only deals with the electrolytic coating but not with the pretreatment at all.

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The fact that the electrolyte which is used in Lehmkuhl for the electrolytic coating is also suitable in the pretreatment step is an assumption of the Examiner which is not based on the content of the state of the art. The argument of the Examiner that it was obvious for a person skilled in the art to use the electrolyte described in Lehmkuhl in the pretreatment step described in Dotzer is hindsight because this assumption is only available if the Examiner knows the invention.

For all these reasons, currently amended Claims 1-18 are non-obvious over the cited references, and their rejection under 35 USC §103(a) should be withdrawn.

CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, amendments to the claims, the reasons therefor, and arguments in support of the patentability of the pending claim set are presented above. In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

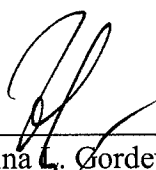
Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: November 1, 2004

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